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Iron

VS.

Rust

GEORGE H. MORGAN,
Philadelphia Sales Agent
Room 302 Builders' Exchange
(Seventh St above Chestnut,
Philadelphia.

ARGUED BY

RINALD BROS.,

PHILADELPHIA.



Iron vs. Rust.

"Is it possible to protect iron against rust for any length of time without going to the expense of plating or galvanizing? Can it be done when the iron is not only constantly exposed to wind and weather, to the sea air and spray of the waves, but also to the expansion and continuous jar resulting from rapid firing? Is there a paint that will not decompose, scale off, or blister under those conditions, and that will stand rough handling besides?"

For such a paint the U. S. WAR DEPARTMENT had been searching for years, both in this country and in Europe, in order to find an adequate protection for their heavy guns on the sea-coast. That they have met with success will be seen further on.

THE PHILADELPHIA & READING R. R. COMPANY, noticing that the sulphurous smoke and fumes emanating from the smokestacks of their locomotives did destroy in a very short time the paint used on bridges and station sheds, have also, after a number of unsuccessful tests, found what they were looking for.



From the earliest times the notion has prevailed that to protect iron a heavy layer of paint should be applied. Oxide of lead used to be the pigment employed for that purpose; but so many well-founded objections to it have arisen within the last twenty years, that it will scarcely be necessary to enumerate them. Other metallic oxides or metallic paints have also, in a number of cases, proved to affect the iron through their electrical influence. Besides, it is well-known



that most mineral paints are either not very durable on account of their chemical composition, or contain adulteration of a basic or acid nature. Their chemical tendencies are often apt to make them enter new combinations after they have become dry, and thus the coating itself may directly induce corrosion of the iron or self-destruction.

It is therefore essential that a pigment should be used which is chemically indifferent, and protects the iron from electrical as well as chemical influences. This is well-known to every chemist or engineer and a great many paint manufacturers also acknowledge it, and, as a consequence, numerous paints are now in the market whose pigments are non-metallic. The great disadvantage we have found in all those which have come under our observation was, that they will dry out perfectly hard, and in consequence become brittle in time. Once brittle, they no longer follow the expansion of the iron, and cracks or fissures will be the result. In these fissures the rust finds a starting place wherefrom it undermines the paint and causes it to peel off. A further disadvantage becomes apparent as the paint continues drying. Then the layer of paint loses its hold on the metal, the particles forming the pigment are only loosely held together and a severe rainstorm is liable to wash the paint off. On Railroad Bridges this is especially apt to happen, because there the constant vibration joins forces with the atmospheric influences in their work of destruction.

The binding material which is used in most paints is linseed oil. Now, linseed oil will dry out, and as soon as it becomes dry, the paint will lose its elasticity and not be able to follow the expansion or contraction of the iron, no matter how good the pigment may be.

Well aware of all these circumstances, one of the best known European houses in the paint



line started to make a paint according to the following principles, which has since been introduced both in Europe and in this country, under the name of **BESSEMER PAINT**.

FIRST—The pigment to be free from oxide, electrical qualities, or the least adulteration of an acid or basic nature; the greatest chemical indifference to be a desideratum.

SECOND—The pigment to be of first-class covering capacity, so that only a thin coating would be required, and thus make it possible for the paint to adhere so closely to the iron, that under no circumstances it might be shaken off or split off.

THIRD—The binding material to be of such a nature that it would not dry as hard as lacquer, because that would injure its adhesive qualities, and at the same time not remain so soft that it might be affected by a rainstorm or rubbed off mechanically.

FOURTH—The binding material to be just as little affected by electricity, chemical fumes or solutions and atmospherical influences as the pigment itself.

FIFTH—The binding material to amalgamate thoroughly with the pigment, so that the flexibility of the compound might be affected by heat or cold in exactly the same manner as iron.

We must say, that when our European friends first informed us that the tests made of their **BESSEMER PAINT** during a number of years by authorities on the subject and prominent German chemists, had come out more satisfactory than they expected, we were inclined to doubt whether **BESSEMER PAINT** would really, when used on a large scale, show the same excellent qualities. We have had occasion to convince ourselves that this is the case, and have therefore entered into an arrangement with our



friends to manufacture their BESSEMER PAINT in this country, after having imported it for a couple of years.

We also make a special paint—GASOMETER PAINT—which does not suffer from being submerged in ammonia, and ICE MACHINE PAINT, for use on Pipes and Coils. Our NAUTON, entirely tasteless and odorless, is intended for use on the inside of iron Water Tanks.

PORCELAIN ENAMEL PAINT is a perfect substitute for glazed tiles and bricks when used on inside walls of any material, where it forms a glossy, durable enamel, that may be washed off with water and soap, or cleansed with a hose. Contains no lead and is not affected by chemical fumes.

All our Paints are non-explosive and are free from strong or disagreeable smell. They become odorless as soon as dry and are not injurious to health.

RINALD BROS.,

30 & 32 NORTH SIXTH ST.,
PHILADELPHIA.

PHILADELPHIA OFFICE
BUILDERS' EXCHANGE
18 to 24 So. Seventh Street
GEORGE H. MORGAN, Agent.



Testimonials.

ORDNANCE OFFICE,

War Department,

Washington, D. C., *Oct. 22, 1891.*

Clement D. Rinald,

17 S. Third St., Philadelphia, Pa.

Sir:—I have the honor to inform you that your Bessemer Paint has been used for painting the guns at Sandy Hook, and that the following is an extract of a report received from the Commanding Officer of that post on the subject: "It is found by the tests "up to date, that the Bessemer Paint stands better "the wear and tear of transportation, firing, etc., "than others. It gives a pleasing appearance to the "gun—has a good body, does not blister or scale off "by the heat of the weather or firing, and it seems "to be well fitted for adoption for heavy guns in "service."

In view of this report, will you please inform me at about what rate this paint could be delivered at New York Arsenal.

Respectfully,

CHARLES SHALER,

Capt. Ord. Dept. U. S. A.,

Acting Chief of Ordnance.

THE PHILADELPHIA & READING RAILROAD CO.

Main Line Division,

Superintendent's Office,

Reading, Pa., *Dec. 12, 1891.*

The White Enamel Paint was used at the time of its receipt on the inside of our East Penn Round House, and the Bessemer Paint on the train shed at this station, where both would be subjected to action of sulphurous smoke and fumes, and upon examination this day they show excellent results, and with every indication of durability.

Yours truly,

M. F. BONZANO,

Assistant General Superintendent.

THE PHILADELPHIA & READING RAILROAD CO.

Office General Superintendent.

Philadelphia, *March 4, 1892.*

Mr. Clement D. Rinald,

17 S. Third St., Philadelphia.

Dear Sir:—In further reply to your letter of 25th ultimo., I beg to advise you that the Bessemer and Porcelain Enamel Paints, placed on trial nearly a year ago, have given very good results.

Yours truly,

I. A. SWEIGARD,

General Supt.

IMPERIAL MARINE-ARTILLERY DEPOT.

Friedrichsort, *January 14, 1890.*

To your letter of 10th inst., I. No. 350, the Depot answers respectfully, that Iron Construction



erected in the open air was painted with Bessemer Paint in September, 1889.

The paint is put on easily, adheres to the iron thoroughly, and so far *no rust or signs of peeling off can be detected.*

The depot reserves a further report, as it is intended to experiment more extensively next spring.

On May 31st, 1890, an order for 600 kilogrammes, and on August 30th, 1890, an order for 1600 kilogrammes were received from the above Arsenal.

Office of CAMDEN IRON WORKS,
R. D. Wood & Co., Managers, Philadelphia.

Camden, N. J., 12 mo., 1st, 1890.

Dear Sir:—We have been using the sample you sent us in several trying places and have found your sample *better than any other we have tried for those purposes.* The paint has in no place showed any decomposition. *We think very well of it.*

Yours truly,

GEORGE B. WOOD,

Supt. Camden Iron Works.

One of the tests made by the Camden Iron Works consisted in covering an iron plate on one side with two thin coats of Bessemer Paint, on the other with several heavy coatings of Best Red Lead. Fastening the plate to a pole they had it exposed to the weather and the acid vapors emanating from the Works of the Camden Chemical Co. When taken down the Red Lead had turned completely black, while Bessemer Paint looked as fresh as on the first day. In January the Camden Iron Works gave an order for Bessemer Paint to be used on the roof of their iron foundry.

TACONY IRON AND METAL COMPANY.

Tacony, Philad'a, April 10, 1891.

Dear Sir:—Please send us at once one barrel of your Bessemer Paint. We have tried your Paint and *think it a first-class paint* for all kinds of Iron Work. The barrel ordered is for painting our corrugated Iron Foundry, and on account of its *great covering qualities* will no doubt prove *economical*, although first cost is rather high.

Yours very truly,

TACONY IRON & METAL Co.,
per FRANK SUMMAY

PROF. FRESENIUS, Wiesbaden, says:

"Bessemer Paint can be used without any priming, attaching itself thoroughly to metallic surfaces. It is as elastic when several months old as when fresh. Sheet iron may be readily bent or twisted without breaking or cracking off the paint. Prolonged exposure to sunlight or heating to 212° Fahrenheit, do not destroy its covering properties. Acid solutions as strong as 20° do not affect the color. Without doubt it is entirely adapted for painting metal surfaces, which are exposed to atmospheric influences."

SCIENTIFIC LABORATORY FOR BREWERIES,
MUNICH:

(Director Aubry's Letter to one of its members.)

I am able to *strongly* recommend to you Messrs. Rosenzweig & Baumann's Bessemer Paint. This paint, if used according to instructions, *will protect*



iron decidedly better than anything I know of or that I have ever tested. The coatings which have been exposed in our laboratory to all sorts of influences, have remained unchanged. A great advantage of the paint seems to be its *extraordinary elasticity*. Without drying too slowly or remaining sticky afterwards, it never loses its flexibility, so that cracking is scarcely possible, and *therefore the iron is permanently protected.*

MUNICIPAL GAS WORKS, CASSIL.

The Municipal Gas Works have used the Bessemer Paint, Dark Gray, No. 1, bought of you, on Gasometer, Purifier Covers and Condensers.

These experiments enable me to say that Bessemer Paint *really protects from rust and atmospheric influences* and therefore is *very valuable*, particularly to Gas Works.

Besides its great covering capacity, Bessemer Paint surpasses all Iron paints that I know of, by its *resistance to acids, etc., and extraordinary elasticity.*

Induced by these excellent results, I intend to have it used on *all the new apparatus and Gasometers* in our Gas Works, which are to be erected this year. I shall also have *all the lamp-posts painted with it.*

So far only Bessemer Paint, No. 1, Dark Gray, has been used, and therefore I cannot say anything about the other shades.

H. HEPLING.

Director of the Municipal Gas Works.

A. RENNER RAILROAD CONSTRUCTION AND SUPPLY COMPANY, BRUNSWICK.

In reply to your favor of yesterday, I gladly confirm that the Bessemer Paint bought from you *has proved excellent* for painting all sorts of iron construction, not only as far as resistance to atmospheric influence and protection from rust are concerned, *but also in regard to covering capacity, and its favorable results have never been approached with other colors.*

256 S. 15TH STREET,

Philadelphia, *June 10, 1892.*

Messrs. Rinald Bros.,

Dear Sirs:—The Porcelain Enamel Paint furnished me by you in 1890, to paint the walls of two bath rooms, has given the greatest satisfaction. The bright surface still exists, notwithstanding it has been exposed to great variations of temperature, but also to a series of very moist periods. To any one desiring permanent and neat walls I would unhesitatingly recommend your paint.

I am very respectfully,

FRANK H. ROSENGARTEN